

Modification of a Previously Approved Plan Checklist

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 - Attachment F - Construction Plans
 - Attachment G - Inspection, Maintenance, Repair and Retrofit Plan
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- **Agent Authorization Form (TCEQ-0599), if application submitted by agent**
- **Application Fee Form (TCEQ-0574)**
- **Check Payable to the "Texas Commission on Environmental Quality"**
- **Core Data Form (TCEQ-10400)**

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with [30 TAC 213](#).

Administrative Review

1. [Edwards Aquifer applications](#) must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <http://www.tceq.texas.gov/field/eapp>.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or if not withdrawn the application will be denied and the application fee will be forfeited.
4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available to you:

- You can withdraw your application, and your fees will be refunded or credited for a resubmittal.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the effected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: San Antonio Water System				2. Regulated Entity No.:			
3. Customer Name: Jim Pedraza, P.E.				4. Customer No.: 600529069			
5. Project Type: (Please circle/check one)	New	Modification		Extension	Exception		
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS	UST	AST	EXP	EXT
7. Land Use: (Please circle/check one)	Residential	Non-residential			8. Site (acres):		2.11
9. Application Fee:	\$4,000	10. Permanent BMP(s):			Vegetated Filter Strips		
11. SCS (Linear Ft.):		12. AST/UST (No. Tanks):			1		
13. County:	Bexar	14. Watershed:			Salado Creek		

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	Hays	Travis	Williamson
Original (1 req.)	—	—	—
Region (1 req.)	—	—	—
County(ies)	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	<input checked="" type="checkbox"/>	—	—	—	—
Region (1 req.)	<input checked="" type="checkbox"/>	—	—	—	—
County(ies)	<input checked="" type="checkbox"/>	—	—	—	—
Groundwater Conservation District(s)	<input checked="" type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input checked="" type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Don Burger, P.E.

Print Name of Customer/Authorized Agent

Don Burger

5/29/2019

Signature of Customer/Authorized Agent

Date

****FOR TCEQ INTERNAL USE ONLY****

Date(s) Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This General Information Form is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Don Burger, P.E.

Date: 5/29/2019

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: San Antonio Water System
2. County: Bexar
3. Stream Basin: Salado Creek
4. Groundwater Conservation District (If applicable): Edwards Aquifer Authority
5. Edwards Aquifer Zone:
 - ☒ Recharge Zone
 - ☐ Transition Zone
6. Plan Type:
 - ☐ WPAP
 - ☐ SCS
 - ☒ Modification
 - ☐ AST
 - ☐ UST
 - ☐ Exception Request

7. Customer (Applicant):

Contact Person: Santiago "Jim" Pedraza, P.E.

Entity: San Antonio Water System

Mailing Address: P.O. Box 2449

City, State: San Antonio, TX

Zip: 78298

Telephone: 210-233-3594

FAX: 210-233-4856

Email Address: jim.pedraza@saws.org

8. Agent/Representative (If any):

Contact Person: Don Burger

Entity: Tetra Tech

Mailing Address: 700 N. Saint Mary's St., Suite 300

City, State: San Antonio, TX

Zip: 78205

Telephone: 210-299-7909

FAX: _____

Email Address: don.burger@tetrattech.com

9. Project Location:

- ☒ The project site is located inside the city limits of San Antonio.
- ☐ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
- ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

The location of this site is approximately 0.7 miles north of the intersection of Loop 1604 West and Rogers Ranch. Project location: 18450 Rogers Bend, San Antonio, TX 78258.

11. ☒ **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.
12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:
- ☒ Project site boundaries.
 - ☒ USGS Quadrangle Name(s).
 - ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
 - ☒ Drainage path from the project site to the boundary of the Recharge Zone.
13. ☒ **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☐ Survey staking will be completed by this date: _____

14. ☒ **Attachment C – Project Description.** Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- ☒ Area of the site
- ☒ Offsite areas
- ☒ Impervious cover
- ☒ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Site history
- ☒ Previous development
- ☒ Area(s) to be demolished

15. Existing project site conditions are noted below:

- ☒ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- ☒ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☐ Undeveloped (Undisturbed/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
- (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
- (4) The use of sewage holding tanks as parts of organized collection systems; and
- (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
- (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - ☒ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
 - ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
 - ☐ A request for an extension to a previously approved plan.
19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:
- ☐ TCEQ cashier
 - ☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 - ☒ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

TCEQ FORM – FORM 0587
ATTACHMENT A – ROAD MAP

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



700 N. SAINT MARY'S STREET, STE. 300
SAN ANTONIO, TEXAS 78205
PH 210.226.2922 FX. 210.226.8497



ROAD MAP

NAD 1983 STATE PLANE
TEXAS SOUTH CENTRAL FIPS 4204 FT

A

TCEQ FORM – FORM 0587

ATTACHMENT B – USGS/EDWARDS RECHARGE ZONE MAP



DOCUMENT PATH: R:\0308\200-09308-1600\1DCCSPERMIT\SITEAPP\GIS\USGS_MAP.MXD

 TETRA TECH	TBPE FIRM NO. F-3924 www.tetrattech.com 700 N. SAINT MARY'S STREET, STE. 300 SAN ANTONIO, TEXAS 78205 PH 210.299.7900	 0 500 1,000 2,000 Feet USGS QUADRANGLE MAP: CASTLE HILLS	 SAWS	SAWS SALADO CREEK PUMP STATION HIGH SERVICE PUMPS AND BUILDING USGS/EDWARDS RECHARGE ZONE MAP NAD 1983 STATE PLANE TEXAS SOUTH CENTRAL FIPS 4204 FT	ATTACHMENT B
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TCEQ FORM – FORM 0587

ATTACHMENT C – PROJECT DESCRIPTION

PROJECT DESCRIPTION (2017)

The San Antonio Water System (SAWS) is proposing to construct an additional pump station at the Salado Booster Station. The location of this site is approximately 0.70 miles north of the intersection of Loop 1604 West and Rogers Ranch. The project address is: 18450 Rogers Bend, San Antonio, TX 78258. This site is located within the limits of the City of San Antonio and lies within the Edwards Aquifer Recharge Zone.

Currently the Salado Booster Station facility houses a five million gallon potable water reservoir and seven high service pumps. Associated with this pumping system there is an electrical and transformer pad and an instrument room. The site is bordered by single family homes to the west, undeveloped wooded buffer areas to the north and south, and an existing 75 foot wide CPS electric transmission main easement.

The following item is being added to the site in addition to the improvements under the 2017 WPAP Modification:

- Construction of a 12" gravel driveway around the tank to the pump station slab for better access.

The project site is 2.11 acres, but the area of soil disturbance comprises only 0.05 acres due to the addition of the 12' gravel driveway. The current impervious cover area is 0.90 acres and the post-project impervious cover area is 0.90 acres. The modification that was approved in 2017 did not increase the impervious area due to the addition of the new 12' gravel driveway.

Geologic Assessment

Texas Commission on Environmental Quality

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Vincent D Swadis

Telephone: (832) 251-6093

Date: August 4, 2017

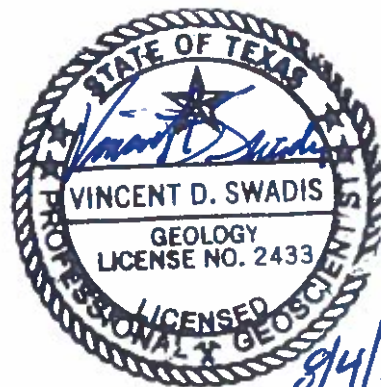
Fax: (832) 251-5170

Representing: Tetra Tech, Inc. (Firm Registration # 50240) (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Salado Water Storage Tank (RN102756905)



Project Information

1. Date(s) Geologic Assessment was performed: October 28, 2015

2. Type of Project:

- ☒ WPAP
☐ SCS

- ☐ AST
☐ UST

3. Location of Project:

- ☒ Recharge Zone
☐ Transition Zone
☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table.** Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
5. ☒ Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Eckrant cobbly clay, 5 to 15 percent slopes	D	0.7-1.5

*** Soil Group Definitions (Abbreviated)**

- A. Soils having a high infiltration rate when thoroughly wetted.
- B. Soils having a moderate infiltration rate when thoroughly wetted.
- C. Soils having a slow infiltration rate when thoroughly wetted.
- D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column.** A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
7. ☒ **Attachment C – Site Geology.** A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
8. ☒ **Attachment D – Site Geologic Map(s).** The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'
 Applicant's Site Plan Scale: 1" = 20'
 Site Geologic Map Scale: 1" = 20'
 Site Soils Map Scale (if more than 1 soil type): 1" = NA'
9. Method of collecting positional data:
 - ☒ Global Positioning System (GPS) technology.
 - ☐ Other method(s). Please describe method of data collection: _____
10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.
11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
- ☐ Geologic or manmade features were not discovered on the project site during the field investigation.
13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
- ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
- ☐ The wells are not in use and have been properly abandoned.
- ☐ The wells are not in use and will be properly abandoned.
- ☐ The wells are in use and comply with 16 TAC Chapter 76.
- ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

15. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

GEOLOGICAL ASSESSMENT – FORM 0585
ATTACHMENT A

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: Salado Water Storage Tank

[illegible]

Datum: WGS 84

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials
12 TOPOGRAPHY	
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed	

I have read, I understand, and I have followed the Texas Natural Resource Conservation Commission's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined by 30 TAC 213

Verantw. Spack

Date: 08-04-17



GEOLOGICAL ASSESSMENT – FORM 0585
ATTACHMENT B

STRATIGRAPHIC COLUMN

STRATIGRAPHIC COLUMN

Hydrogeologic subdivision		Group, formation, or member	Hydro-logic function	Thickness (feet)	Lithology	Field identification	Cavern development	Porosity/ permeability type		
Upper Cretaceous	Upper confining unit	Taylor Group	CU	600	Clay; chalky limestone	Gray-brown clay; marly limestone	None	Low porosity/ low permeability		
		Austin Group	CU; rarely AQ	130 – 150	White to light-tan to gray limestone	White, chalky limestone; <i>Pyrnodonta nucella</i> , <i>Imoceramus subquadratus</i>	None	Low porosity; rare water production from fractures/ low permeability		
		Eagle Ford Group	CU	30 – 50	Brown, flaggy sandy shale and argillaceous limestone	Thin flagstones; petroliferous	None	Primary porosity lost/ low permeability		
		Buda Limestone	CU	40 – 50	Buff, light-gray, dense mudstone	Porcelaneous limestone	Minor surface karst	Low porosity/ low permeability		
		Del Rio Clay	CU	50 – 60	Blue-green to yellow-brown clay	Fossiliferous; <i>Hymanogrya arctica</i>	None	None/primary upper confining unit		
Lower Cretaceous	I	Edwards Group	Georgetown Formation	CU	40 – 60	Gray to light-tan, marly limestone	Marker fossil; <i>Wacianella wacianensis</i>	None	Low porosity/ low permeability	
	II		Person Formation	Cyclic and marine members, undivided (4)	AQ	0 – 70	Mudstone to packstone; <i>milfolid</i> grainstone; chert	Boxwork vugs; light tan, massive; some <i>Toucasia</i> , <i>Caprinid</i> , and <i>Chondrodonta</i>	Many caves; might be associated with earlier karst development	Laterally extensive; both fabric and not fabric/water-yielding; one of the most porous and permeable; essentially absent in Travis County
	III			Leached and collapsed members, undivided (4)	AQ	30 – 80	Crystalline limestone; mudstone to wackestone to <i>milfolid</i> grainstone; chert; collapsed breccia	Light-gray, bioturbated iron-stained beds separated by massive limestone beds; <i>Tinucella</i> , <i>Chondrodonta</i>	Extensive lateral development; large rooms	Majority not fabric/ one of the most porous and permeable
	IV			Regional dense member (3)	CU	20 – 30	Light-tan, dense, argillaceous mudstone	Wisp iron-oxide stains; <i>Pleurostoma knoxianum</i> , <i>Ceratostreum texanum</i>	None; only vertical fracture enlargement	Not fabric/ low permeability; vertical barrier
	V			Grainstone member (2)	AQ	45 – 60	Light-gray, <i>milfolid</i> grainstone; mudstone to wackestone; chert	White embedded grainstone; <i>Toucasia</i> , <i>Turritella</i> , and <i>Chondrodonta</i>	Few caves	Not fabric/ recrystallization reduces permeability
	VI		Kainer Formation	Kirschberg evaporite member (1)	AQ	65 – 75	Light-gray, crystalline limestone; chalky mudstone; chert	Boxwork voids, with neospar and travertine frame; <i>Cladophyllia</i> and <i>Turritella</i>	Probably extensive cave development	Majority fabric/ one of the most porous and permeable
	VII			Dolomitic member (1)	AQ	110 – 150	Mudstone to grainstone; crystalline limestone; chert	Massively bedded, light gray, <i>Tinucella</i> abundant; <i>Dicynotermis walnutensis</i> , <i>Caprinid</i>	Caves related to structure or bedding planes	Mostly not fabric, some bedding-plane fabric/ water-yielding; locally permeable
	VIII			Basal nodular member	Karst AQ; not karst CU	45 – 60	Shaly, fossiliferous, nodular limestone; mudstone; <i>milfolid</i> grainstone	Massive, nodular and mottled; <i>Ceratostreum texanum</i> , <i>Dicynotermis walnutensis</i> , and <i>Tetragryphaea</i>	Few caves	Fabric/low permeability
	Lower confining unit		Upper member of the Glen Rose Limestone	CU; evaporite beds AQ	350 – 500	Yellowish-tan, thinly bedded limestone and marl	Stair-step topography; alternating limestone and marl	Some surface cave development	Some water production at evaporite beds/ relatively impermeable	

GEOLOGICAL ASSESSMENT – FORM 0585
ATTACHMENT C

NARRATIVE OF SITE SPECIFIC GEOLOGY

LOCATION

The Project Site is located on Rogers Bend just east of the intersection of Rogers Bend and Rogers Pass, in San Antonio, Texas. The center of the project site is located at N29° 36' 50.70" Latitude and W98° 31' 54.53" Longitude (WGS 84). The 2.376-acre property is physically located at 18450 Rogers Bend, owned by the City of San Antonio, and operated as a booster station by the San Antonio Water Systems (SAWS). The property location is depicted on Figure 1.

METHODOLOGY

The site reconnaissance for the Geologic Assessment was performed by Sameer Chandra, P.G. and Matt Anding, P.G. on October 28, 2015. Prior to conducting the site reconnaissance the geology of the area surrounding the intersection of Rogers Bend and Rogers Pass, in San Antonio, Texas was researched. The research included, but was not limited to, the Geologic Atlas of Texas, San Antonio Sheet, Federal Emergency Management Agency (FEMA) maps, Edwards Aquifer Recharge Zone Maps, USGS 7.5 Minute Quadrangle Maps, Bureau of Economic Geology online digital data, and the United States Department of Agriculture (USDA) Soil Survey of Bexar County, Texas.

After reviewing the available information, a field investigation was performed to identify any geologic or man made potential recharge features. A transect spacing of approximately 25 feet, or less depending on vegetation thickness, was used to inspect the project site. A 2015 aerial photograph, in conjunction with a hand held sub-meter Trimble GeoXH Global Positioning System (GPS), was used to navigate on the property and search for potential recharge features, as recommended in the "Instructions to Geologists", TCEQ-0585-Instructions (Rev. 10-1-04). The Geologic Assessment Form, Stratigraphic Column, and the Geologic Assessment Table have been filled with the appropriate information for this project site and are included at the front of this report.

NARRATIVE DESCRIPTIVE OF SITE GEOLOGY

The project site is located on a relatively flat, broad area that consists of a previously developed as SAWS Site, referred to as the Salado Booster Station. The developed site consists of a 170' wide water supply tank and accompanying infrastructure, including a 65'x 50' building, which house the onsite pumps. The Site is bordered to the east by a utility easement containing a manmade stormwater drainage channel. This drainage channel was seemingly created by trenching down to solid bedrock. The project site is bordered on all sides by single-family residential neighborhoods. The project site has relatively sparse vegetation other than maintained grass lawn and a variety of trees. The main vegetative cover consists primarily of grasses, Live Oak, and Ashe Juniper.

Based on literature research and field reconnaissance, the project site has no known faults on the property. Underlying the soil cover is the Nodular Unit of the West Nueces Formation of the Edwards Group. The entire project site is located within the Edwards Aquifer Recharge Zone. A geologic map of the Site is presented as Figure 5.

The land surface of the project site was graded when the facility was first constructed in 2000. No depressions were observed in the ground on the project site. The booster station currently has large (12") buried water piping entering from off-site from the north. A drain is situated on the southeast side

of the large water holding tank. This drain captures run off from the water tank and conveys it through a buried pipe to the southwest section of the property where it can be accessed through a manhole structure. The conveyance then heads further south where water exits onto the ground surface via a concrete headwall structure. The ground below the headwall has been covered with large riprap rock to reduce stormwater flow and to prevent erosion. No other significant observations were noted across the project area during the site reconnaissance.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS

- S-1 MB: Manmade feature: Stormwater headwall on project site. Stormwater conveyance system originates from a drain situated on the southeast side of the large water holding tank. Riprap rock is on ground surface below headwall.
- S-2 MB: Manmade feature: Stormwater manhole structure, allowing access to stormwater conveyance originating at drain next to water tank.
- S-3 O: Section of exposed bedrock: Manmade outcrop of bedrock around north and northeast side of water tank. Bedrock was cut into in order to place water tank on level ground.
- S-4 O: Section of exposed bedrock. Stormwater drainage channel to the east of project site. Channel was trenched down to bedrock to allow for stormwater to drain to the southeast.
- S-5 MB: Manmade feature: Tank drain structure, captures run off from tank conveys it to the stormwater manhole structure.

Based on a visual inspection of the ground surface, review of available literature and geology for the overall potential for fluid flow from the project site into the Edwards Aquifer appears to be low.

SOIL DESCRIPTION

The project site has soil cover of approximately 0.7 to 1.5 feet of clayey soil, consisting of the following soil association:

Eckrant cobbly clay, 5 to 15 percent slopes (TaC) – The Eckrant cobbly clay soils are very dark gray to black clay. They are cobbly clay in texture and are shallow to moderately deep over hard limestone. These soils are extensive in the northern part of the county. The surface layer is cobbly clay, about 10 inches thick, and very dark gray to black. It has fine, subangular blocky and granular structure. When moist, this layer is very firm but breaks easily to a mass of fine clods. When dry, is very hard and contains many large cracks. Angular fragments of chert and limestone are common. These fragments may range in size from a quarter of an inch to 24 inches in diameter. The subsurface layer is dense, extremely stony clay loam. It is about 8 to 12 inches thick and rests on hard, fractured limestone. Eckrant soils are naturally well drained. Internal drainage and permeability vary according to moisture content. Water moves rapidly when the soil is dry and cracked, but very slowly when the soil is wet. A map of soils on Site is presented as Figure 3.

RESEARCH

7.5 Minute Quadrangle Map Review

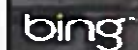
According to the USGS 7.5 Minute Quadrangle Map, Bulverde, Texas Sheet, the elevation of the project site ranges from 1090 feet to 1075 feet. These elevations are calculated above mean sea level (AMSL). Surface runoff from the project site appears to flow south-southeast towards a drainage easement that runs east-southeast along Michelangelo Road. A topographic map of the Site is presented as Figure 2.

Recharge / Transition Zone

According to the Official Edwards Aquifer Recharge Zone Map, Castle Hills, Texas Sheet, and Edwards Aquifer Authority GIS data, the project site is located within the Recharge Zone of the Edwards Aquifer.

100-Year Floodplain

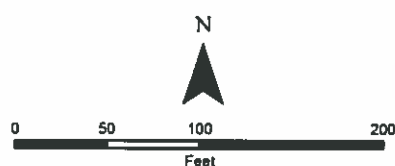
The Federal Emergency Management Agency (FEMA) 100 Year Flood GIS data for Bexar County was reviewed. The project site does not appear to be in a special flood zone according to the referenced FEMA GIS data.



Project Site



TC NO.	DATE	DRAWN BY	MAP NO.	FIGURE
T35095	10/27/15	ANDING	001	1

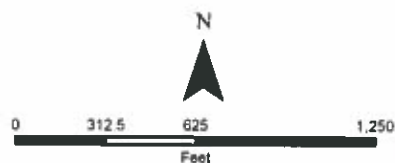




Symbol	Description
TaD	Eckrant-Rock outcrop complex, 15 to 60 percent slopes
TaC	Eckrant cobbly clay, 5 to 15 percent slopes
Cb	Crawford and Bexar stony soils
TaB	Eckrant cobbly clay, 1 to 5 percent slopes

Legend

- Project Site
- NRCS Soils



San Antonio Water System
Bexar County, TX

Soils Map

SAWS Salado Booster Station
Geologic Investigation



TETRA TECH

700 N St. Mary's St., #300
San Antonio, TX 78205

TC NO.	DATE	DRAWN BY	MAP NO.	FIGURE
T35095	10/27/15	ANDING	003	3

Appendix A

Site Photographs



1. Entrance to project site (SAWS Salado Booster Station).



2. Photo of project site.



3. Photo of stormwater headwall (S-1).



4. Photo of stormwater manhole structure (S-2).



5. Photo of bedrock outcrop (S-3).



6. Photo showing close-up of bedrock (S-3).



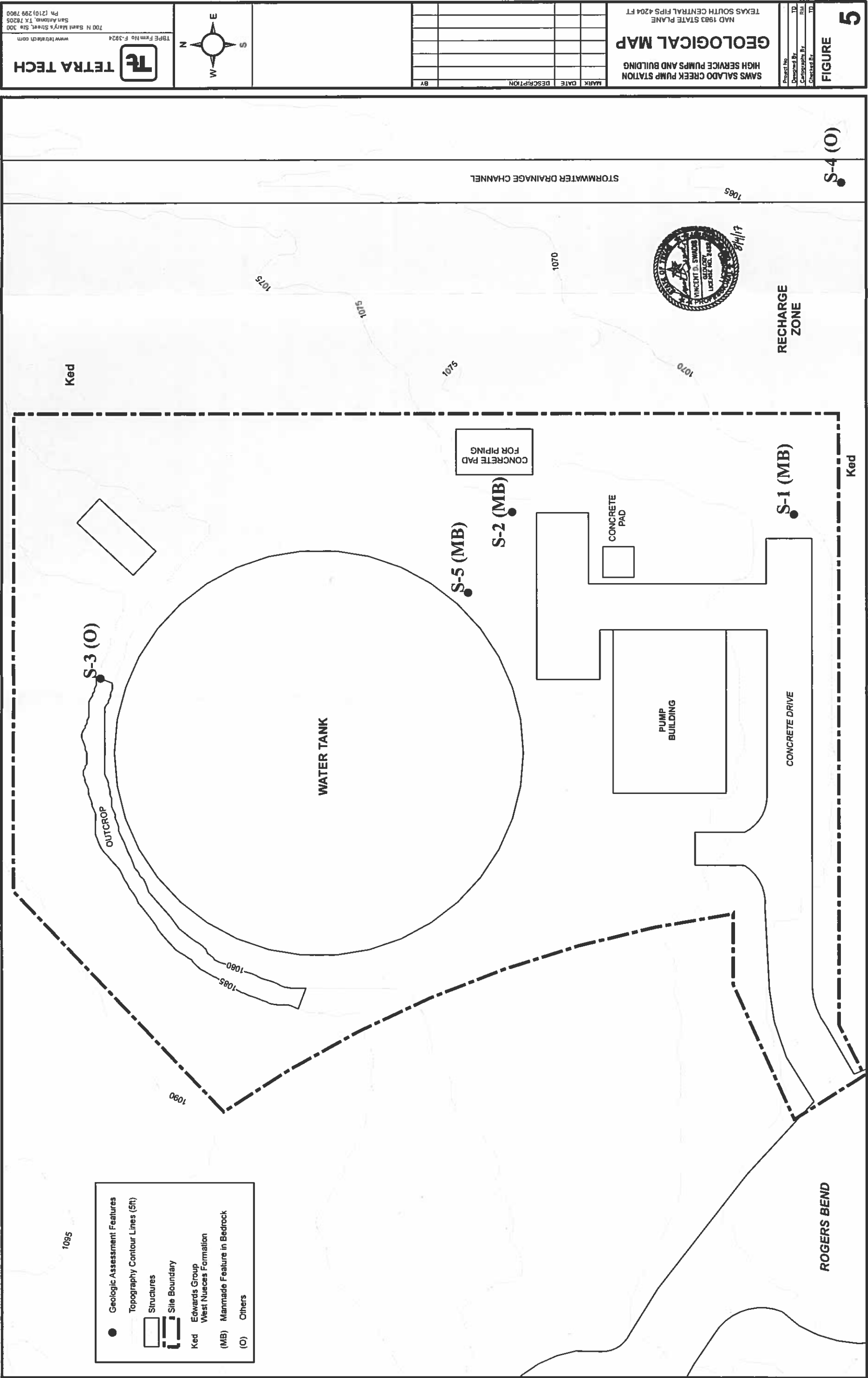
7. Photo of stormwater drainage channel to the east of project site (S-4).



8. Photo of water drain (S-5).

GEOLOGICAL ASSESSMENT – FORM 0585
ATTACHMENT D

SITE GEOLOGIC MAP



Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and
Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Don Burger, P.E.

Date: 5/29/2019

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: San Antonio Water System
Original Regulated Entity Name: n/a
Regulated Entity Number(s) (RN): _____
Edwards Aquifer Protection Program ID Number(s): _____
☒ The applicant has not changed and the Customer Number (CN) is: 600529069
☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.
2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters.** A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
- ☐ Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
 - ☐ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
 - ☒ Development of land previously identified as undeveloped in the original water pollution abatement plan;
 - ☐ Physical modification of the approved organized sewage collection system;
 - ☐ Physical modification of the approved underground storage tank system;
 - ☐ Physical modification of the approved aboveground storage tank system.
4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification	Approved Project	Proposed Modification
Summary		
Acres	<u>2.11</u>	<u>2.11</u>
Type of Development	<u>Commercial</u>	<u>Commercial</u>
Number of Residential Lots	<u>n/a</u>	<u>n/a</u>
Impervious Cover (acres)	<u>0.90</u>	<u>0.90</u>
Impervious Cover (%)	<u>42.70%</u>	<u>42.70%</u>
Permanent BMPs	<u>VFSs</u>	<u>VFSs</u>
Other	_____	_____
SCS Modification	Approved Project	Proposed Modification
Summary		
Linear Feet	_____	_____
Pipe Diameter	_____	_____
Other	_____	_____

AST Modification**Approved Project****Proposed Modification****Summary**

Number of ASTs

Volume of ASTs

Other

UST Modification**Approved Project****Proposed Modification****Summary**

Number of USTs

Volume of USTs

Other

5. ☒ **Attachment B: Narrative of Proposed Modification.** A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.
6. ☒ **Attachment C: Current Site Plan of the Approved Project.** A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
- ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
- ☒ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
- ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
- ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
- ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.
7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
- ☒ Acreage has not been added to or removed from the approved plan.
8. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

TCEQ FORM – FORM 0590

**ATTACHMENT A – ORIGINAL APPROVAL LETTER AND APPROVED MODIFICATION
LETTERS**

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 15, 2018

Mr. Jim Pedraza, P.E.
San Antonio Water System
P.O. Box 2449
San Antonio, Texas 78298-2449

Re: General Compliance for the Compliance Record Review:
SAWS PZ 1295 Booster Station Project - Located at 18450 Rogers Road; San Antonio, Texas
Edwards Aquifer Protection Program; Investigation No. 1511768;
Regulated Entity No. RN109695817

Dear Mr. Pedraza:

On August 21, 2018, Mr. Russell Hare of the Texas Commission on Environmental Quality (TCEQ) San Antonio Region Office conducted an investigation of the above-referenced regulated entity to evaluate compliance with the deed recordation requirements of the Edwards Aquifer Protection Program. No violations are being alleged as a result of the investigation, however, please see the attached Area of Concern

The TCEQ appreciates your assistance in this matter and your compliance efforts to ensure protection of the State's environment. If you or members of your staff have any questions, please feel free to contact Mr. Russell Hare in the San Antonio Region Office at (210) 403-4061.

Sincerely,

A handwritten signature in black ink that reads "Todd Jones".

Todd Jones, Water Section Work Leader
San Antonio Region Office
Texas Commission on Environmental Quality

TJ/RH/eg

Enclosed: Summary of Investigation Findings

Summary of Investigation Findings

SAWS PZ 1295 BOOSTER STATION PROJECT

Investigation #

1511768

Investigation Date: 09/05/2018

, BEXAR COUNTY,

Additional ID(s): 13000486

AREA OF CONCERN

Track No: 688939

30 TAC Chapter 213.4(g)

Alleged Violation:

Investigation: 1511768

Comment Date: 11/13/2018

Failure to submit to the San Antonio Region Office proof of recordation of notice in the Bexar County deed records within 60 days of receiving written approval of a Water Pollution Abatement Plan.

No proof of deed recordation was on file with the San Antonio Region Office at the time of the investigation.

Recommended Corrective Action: Submit proof of deed recordation to TCEQ San Antonio Region Edwards Aquifer Protection Program.

Resolution: Proof of deed recordation in Bexar County was submitted to TCEQ San Antonio Region Edwards Aquifer Protection Program on August 30, 2018.

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Jeffrey A. Saitas, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 28, 2002

Mr. Steven Renneker
San Antonio Water System
1222 North Main
San Antonio, TX 78298

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: Salado Water Storage Tank Site; Project is located immediately adjacent to the CPS easement in Rogers Ranch Subdivision; San Antonio, Texas
TYPE OF PLAN: Request for Modification of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program File No. 1339.02

Dear Mr. Renneker:

The Texas Natural Resource Conservation Commission (TNRCC) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by Mr. Paul B. Hartnett, P.E., of Hartnett Engineered Solutions, Inc. on behalf of the San Antonio Water System December 5, 2001. As presented to the TNRCC, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter.

The plan for modifying this project has been reviewed for compliance with 30 TAC §213.5(b) which sets forth pollution abatement criteria for any development on the recharge zone of the Edwards Aquifer. The proposed water pollution abatement plan modification is in general agreement with 30 TAC §213.5(b); therefore, approval of the plan is hereby granted subject to the specific condition listed below.

The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan, modification to a plan, or exception. A motion for reconsideration must be filed no later than 20 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10% of the construction has commenced on the project or an extension of time has been requested.*

PROJECT DESCRIPTION

This facility was previously approved by letter dated October 12, 1999. As presented, the proposed modification to the commercial project will consist of:

- Changing the configuration of the proposed access road. The width and construction materials of the proposed roadway will remain the same as originally approved.

REPLY TO: REGION 13 • 14250 JUDSON RD. • SAN ANTONIO, TEXAS 78233-4480 • 210/490-3096 • FAX 210/545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

Mr. Steven Renneker

Page 2

January 28, 2002

- The construction of a sanitary sewer service line (approximately 120 liner feet), to transport approximately 50 gallons per day of pump drip water (potable water) off the site. Project wastewater will be disposed of by conveyance to the existing Salado Creek Sewage Treatment Plant owned by the San Antonio Water System.
- The construction of a building over the high service pump pad. The building will be constructed on the previously approved pump pad and therefore will not increase the overall impervious cover of the site.
- According to the applicant, the impervious cover for this commercial development will not be increased and remain at 30.6 % of the site area.
- The original permanent best management practice consisted of a 3,000 square foot grassy swale. This permanent measure and its proposed maintenance will not change.

SPECIAL CONDITIONS

- I. This modification is subject to all Special and Standard Conditions listed in the WPAP approval letter of October 12, 1999.
- II. All permanent pollution abatement measures shall be operational prior to commencement of operation.

If you have any questions or require additional information, please contact Tom Gutierrez of the Edwards Aquifer Protection Program of the San Antonio Regional Office at 210/403-4025.

Sincerely,



for Jeffrey A. Saitas, P.E.
Executive Director
Texas Natural Resource Conservation Commission

JAS/TG/eg

Enclosure: Deed Recordation Affidavit, Form TNRCC-0625
Change in Responsibility for Maintenance or Permanent BMPs-Form TNRCC-10263

cc: Mr. Paul B. Hartnett, P.E., Hartnett Engineered Solutions, Inc.
Mr. Scott Halty, San Antonio Water System
Ms. Renee Green, Bexar County Public Works
Mr. Greg Ellis, Edwards Aquifer Authority
TNRCC Field Operations, Austin, TX

Robert J. Huston, *Chairman*
B. Ralph Marquez, *Commissioner*
John M. Baker, *Commissioner*
Melvyn A. Saitas, *Executive Director*

OCT 13



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 12, 1999

Mr. Steven Renneker
San Antonio Water System
1222 North Main
San Antonio, TX, 78298

Re: Edwards Aquifer, Bexar County

NAME OF PROJECT: Salado Water Storage Tank; Located immediately adjacent to the CPS Easement in Rogers Ranch Subdivision: San Antonio, Texas

TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program File No. 1339.00

Dear Mr Renneker:

The Texas Natural Resource Conservation Commission (TNRCC) has completed its review of the WPAP application for the referenced project submitted to the San Antonio Regional Office by Paul B. Hartnett, P.E. of KEI Consultants, Ltd. on behalf of San Antonio Water System (SAWS) on August 30, 1999. As presented to the TNRCC, the Temporary and Permanent Best Management Practices (BMPs) and construction plans were prepared by a Texas Licensed Professional Engineer to be in general compliance with the requirements of 30 TAC Chapter 213. These planning materials were sealed, signed, and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan, modification to a plan, or exception. A motion for reconsideration must be filed no later than 20 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10% of the construction has commenced on the project or an extension of time has been requested.*

VOL 08353 PG 00088

PROJECT DESCRIPTION

The proposed commercial project will have an area of approximately 2.376 acres and will have the following parameters:

- The improvements will include the construction of a 5-million gallon aboveground steel water storage tank for the storage of potable water and a future booster station. Items

REPLY TO: REGION 13 • 140 HEIMER RD., STE. 360 • SAN ANTONIO, TEXAS 78232-5042 • 210/490-3096 • FAX 210/545-4329

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tnrcc.state.tx.us

installed at the site will include an altitude valve, privacy fence, access road, water main, and storm sewer pipe.

- The proposed impervious cover for the development is approximately 30.6% of the total area of the site.
- The impervious cover for this commercial will be 0.37 acres.
- No wastewater will be generated by this project.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent pollution of stormwater runoff originating on-site or up-gradient of the site and potentially flowing across and off the site after construction, grassy swales and vegetative filter strips have been selected. The individual treatment components will consist of grassy swales that will treat storm water runoff from the water storage tank and adjacent areas and vegetative filter strips (2) that will treat runoff from the roads, parking areas, and concrete pads. The vegetative swales encircling the water storage tank will have an average length of 124 feet. The two vegetative filters will have a total area of 3,000 square feet.

GEOLOGY

According to the geologic assessment included with the submittal, six geologic or man-made features were identified on the site. All six features were assessed as possibly sensitive. The San Antonio Regional Office site inspection of September 24, 1999, revealed that the site is as described by the geologic assessment and no additional geologic or manmade features were observed.

STANDARD CONDITIONS

1. Pursuant to §26.136 of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.

Prior to Commencement of Construction:

2. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the applicant must submit to the San Antonio Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries, covered by the Edwards Aquifer protection plan, shall be included in the deed recordation in the county deed records. A suggested form (TNRCC-0625) that you may use to deed record the approved WPAP is enclosed.

VOL 00353 PG 00089

Mr. Steven Renneker
October 7, 1999
Page 3

Exhibit "A"

3. All contractors conducting regulated activities at the project location shall be provided a copy of this notice of approval. At least one complete copy of the approved WPAP and this notice of approval shall be maintained at the project location until all regulated activities are completed.
4. Modification to the activities described in the referenced WPAP application following the date of approval may require the submittal of a plan to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
5. The applicant must provide written notification of intent to commence construction of the referenced project. Notification must be submitted to the San Antonio Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and file number for the regulated activity, the name of the prime contractor, and the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension of an approved plan.
6. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved WPAP, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TNRCC may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
7. Abandoned injection wells must be closed under the requirements of 30 TAC Chapter 331 (relating to Underground Injection Control).
8. All borings with depths greater than or equal to 20 feet must be plugged with a non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

9. During the course of regulated activities related to this project, the applicant or his agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The

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applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.

10. If any sensitive feature is discovered during construction, all regulated activities near the feature must be suspended immediately. The applicant or his agent must immediately notify the San Antonio Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.
11. No wells exists on the site. All identified abandoned water wells, including injection, dewatering, and monitoring wells must be plugged pursuant to requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Licensing and Regulation of Water Well Drillers and Water Well Pump Installers) and all other locally applicable rules, as appropriate. If any abandoned wells (including water, injection, dewatering, and monitoring well) are encountered during construction, they must be plugged pursuant to requirements of the Texas Department of Licensing and Regulation (16 TAC Chapter 76) and all other locally applicable rules, as appropriate.
12. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).
13. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
14. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

15. To the maximum extent practicable, BMPs and measures must maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction. The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided. A request to temporarily seal must include a justification as to why no reasonable and practicable alternative exists. The request will be evaluated by the executive director on a case-by-case basis.

After Completion of Construction:

16. Owners of permanent BMPs and measures must insure that the BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the San Antonio Regional Office within 30 days of site completion.
17. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred. A copy of the transfer of responsibility must be filed with the executive director through the San Antonio Regional Office within 30 days of the transfer. A copy of the transfer form (TNRCC-10263) is enclosed.
18. Upon legal transfer of this property, the new owner(s) is required to comply with all terms of the approved Edwards Aquifer protection plan. If the new owner intends to commence any new regulated activity on the site, a new Edwards Aquifer protection plan that specifically addresses the new activity must be submitted to the executive director. Approval of the plan for the new regulated activity by the executive director is required prior to commencement of the new regulated activity.
19. An Edwards Aquifer protection plan approval or extension will expire and no extension will be granted if more than 50% of the total construction has not been completed within ten years from the initial approval of a plan. A new Edwards Aquifer protection plan must be submitted to the San Antonio Regional Office with the appropriate fees for review and approval by the executive director prior to commencing any additional regulated activities.

Mr. Steven Renneker
October 7, 1999
Page 6

Exhibit "A"

20. At project locations where construction is initiated and abandoned, or not completed, the site shall be returned to a condition such that the aquifer is protected from potential contamination.

If you have any questions or require additional information, please contact Lynn M. Bumguardner of the Edwards Aquifer Protection Program of the San Antonio Regional Office at (210) 403-4023.

Sincerely,



Jeffrey A. Saitas, P.E.
Executive Director
Texas Natural Resource Conservation Commission

JAS/LMB/eg

Enclosure: Deed Recordation Affidavit--Form TNRCC-0625
Change in Responsibility for Maintenance--Form TNRCC-10263

cc: Mr. Paul Hartnett, P.E., KEI Consultants, Ltd.
Ms. Rebecca Cedillo, San Antonio Water System
Ms. Renee Green, Bexar County Public Works
Mr. Greg Ellis, General Manager, Edwards Aquifer Authority
TNRCC Field Operations, Austin, TX

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TCEQ FORM – FORM 0590

ATTACHMENT B – NARRATIVE OF PROPOSED MODIFICATIONS

PROJECT DESCRIPTION

The San Antonio Water System (SAWS) is proposing to construct an additional pump station at the Salado Booster Station. The location of this site is approximately 0.70 miles north of the intersection of Loop 1604 West and Rogers Ranch. The project address is: 18450 Rogers Bend, San Antonio, TX 78258. This site is located within the limits of the City of San Antonio and lies within the Edwards Aquifer Recharge Zone.

Currently the Salado Booster Station facility houses a five million gallon potable water reservoir and seven high service pumps. Associated with this pumping system there is an electrical and transformer pad and an instrument room. The site is bordered by single family homes to the west, undeveloped wooded buffer areas to the north and south, and an existing 75 foot wide CPS electric transmission main easement.

The following item is being added to the site in addition to the improvements under the 2017 WPAP Modification:

- Construction of a 12" gravel driveway around the tank to the pump station slab for better access.

The project site is 2.11 acres, but the area of soil disturbance comprises only 0.05 acres due to the addition of the 12' gravel driveway. The current impervious cover area is 0.90 acres and the post-project impervious cover area is 0.90 acres. The modification that was approved in 2017 did not increase the impervious area due to the addition of the new 12' gravel driveway.

TCEQ FORM – FORM 0590
ATTACHMENT C – CURRENT SITE PLAN

Drawn By:	NG
Checked By:	DB

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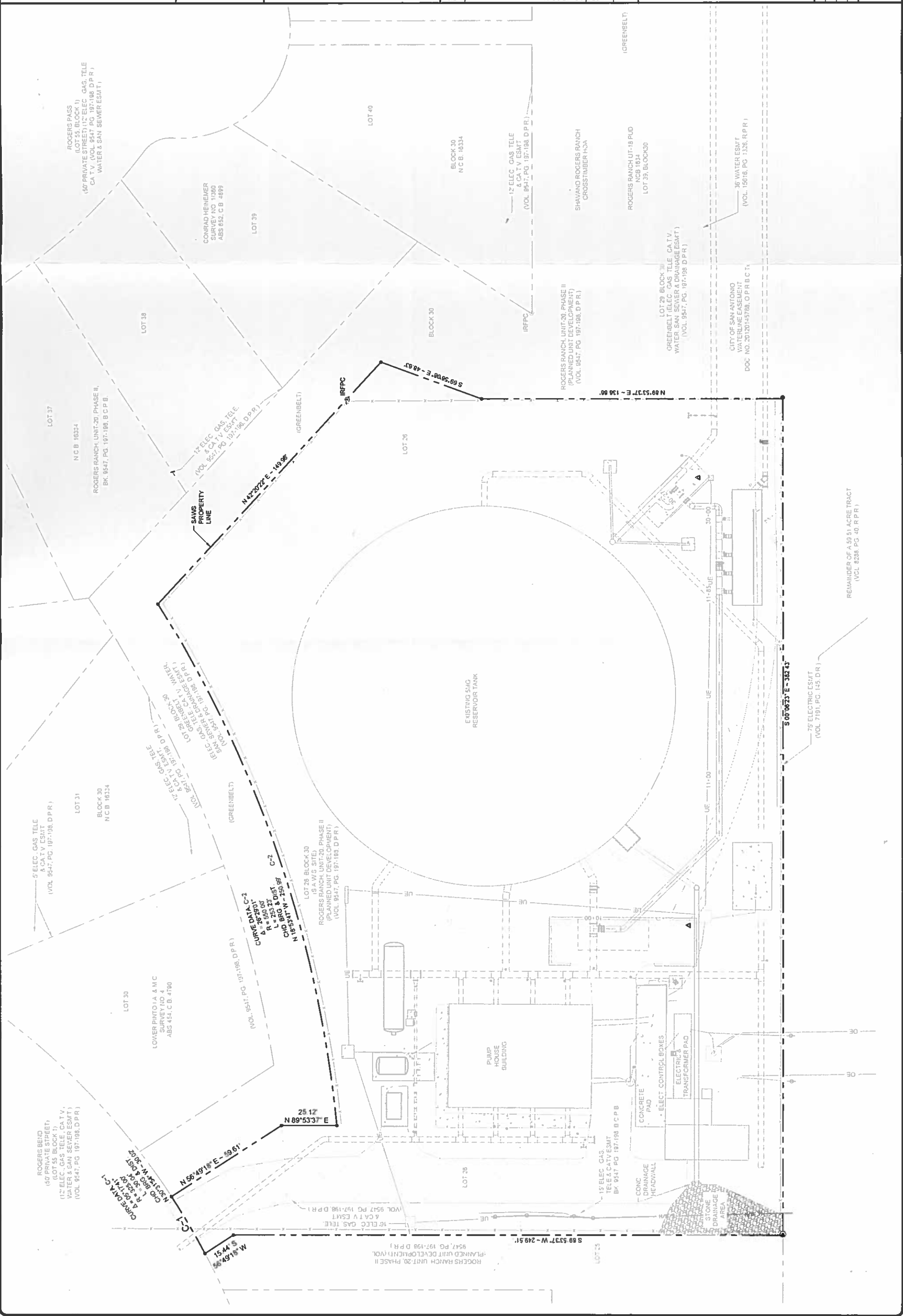
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Co

SAN ANTONIO WATER SYSTEM
SALADO PZ 1295 BOOSTER STATION
EXISTING CONDITIONS

[illegible]

CONFORMED



Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

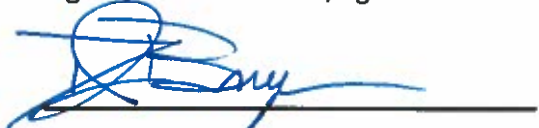
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: Don Burger, P.E.

Date: 5/29/2019

Signature of Customer/Agent:



Regulated Entity Name: San Antonio Water System

Regulated Entity Information

1. The type of project is:

- ☐ Residential: Number of Lots: _____
- ☐ Residential: Number of Living Unit Equivalents: _____
- ☒ Commercial
- ☐ Industrial
- ☐ Other: _____

2. Total site acreage (size of property): 2.11 ac

3. Estimated projected population: 0

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	24,501	$\div 43,560 =$	0.56
Parking	12,851	$\div 43,560 =$	0.30
Other paved surfaces	1,701	$\div 43,560 =$	0.04
Total Impervious Cover	39,054	$\div 43,560 =$	0.90

Total Impervious Cover $0.90 \div$ Total Acreage $2.11 \times 100 = 42.70\%$ Impervious Cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality.** A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7. Type of project:

- ☐ TXDOT road project.
- ☐ County road or roads built to county specifications.
- ☐ City thoroughfare or roads to be dedicated to a municipality.
- ☐ Street or road providing access to private driveways.

8. Type of pavement or road surface to be used:

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

Width of R.O.W.: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

$L \times W =$ _____ $\text{Ft}^2 \div 43,560 \text{ Ft}^2/\text{Acre} =$ _____ acres.

Pavement area _____ acres \div R.O.W. area _____ acres $\times 100 =$ _____ % impervious cover.

11. ☐ A rest stop will be included in this project.
- ☐ A rest stop will not be included in this project.

12. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. ☒ **Attachment B - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

14. The character and volume of wastewater is shown below:

<u>0</u> % Domestic	_____ Gallons/day
<u>0</u> % Industrial	_____ Gallons/day
<u>0</u> % Commingled	_____ Gallons/day
TOTAL gallons/day <u>0</u>	

15. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

- ☐ **Attachment C - Suitability Letter from Authorized Agent.** An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.
- ☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☐ Sewage Collection System (Sewer Lines):

- ☐ Private service laterals from the wastewater generating facilities will be connected to an existing SCS.
- ☐ Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.
- ☐ The SCS was previously submitted on ____.
- ☐ The SCS was submitted with this application.
- ☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

- ☐ The sewage collection system will convey the wastewater to the _____ (name) Treatment Plant. The treatment facility is:

- ☐ Existing.
☐ Proposed.

16. ☐ All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

17. ☒ The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 20'.

18. 100-year floodplain boundaries:

- ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

- ☒ No part of the project site is located within the 100-year floodplain.

The 100-year floodplain boundaries are based on the following specific (including date of material) source(s): FEMA NFHL viewer, accessed August 3, 2017.

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

- ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

- ☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

- ☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

- ☒ There are no wells or test holes of any kind known to exist on the project site.

21. Geologic or manmade features which are on the site:

- ☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

- ☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

- ☐ **Attachment D - Exception to the Required Geologic Assessment.** A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☐ Surface waters (including wetlands).
☒ N/A
27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.
☒ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

Administrative Information

29. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. ☒ Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

TCEQ FORM – FORM 0584

ATTACHMENT A – FACTORS AFFECTING SURFACE WATER QUALITY

DURING CONSTRUCTION

Factors that could affect surface water and ground water quality during construction include additional erosion potential during land disturbing activities, tracking of mud from vehicles entering and exiting the construction site, trash and debris from construction workers, and leaks and spills from construction equipment.

AFTER CONSTRUCTION

Potential sources after construction include erosion from concentrated stormwater runoff. Chemicals and materials will not be stored at the site. The site is not a manned facility.

TCEQ FORM – FORM 0584

ATTACHMENT B – VOLUME AND CHARACTER OF STORMWATER

VOLUME OF STORMWATER

The volume of stormwater runoff can be estimated for both flash events and average annual rainfall for both pre-developed and post-developed conditions. All calculations are based on the following assumptions:

- Surface soils are Tarrant association and soils are in Hydrologic Soil Group D based on NRCS Soil Survey, Bexar County, Texas;
- Run-on from up-gradient land across the site is not significant;
- Predominant slopes ranging from 6 to 8 percent toward the south/southeast;
- Maximum slope distance across site 400 feet;
- Predominately overland flow of stormwater;
- Proposed impervious cover is 45%;
- Average annual rainfall is 30 inches;
- The 25-year, 24-hour storm event is 4 inches.

Flash Event

Storm water runoff from a flash event can be estimated using a rainfall/runoff relationship developed by the Soil Conservation Service. This requires sizing BMPs to treat the 1-year, 3-hour storm event. In Bexar County, the precipitation during that timeframe is 1.91 inches. The equation for the runoff area is as follows:

$Q = (P - 0.2S)^2 / (P + 0.8S)$, where:

Q = Runoff volume/area (inches)

P = Precipitation (inches) = 1.91 inches

S = Retention = $(1000/CN) - 10$, where CN is the curve number

The curve number is affected by a number of factors including soil type, vegetation, impervious cover, slope, channelization, and ponding.

Runoff for Pre-Development Conditions

The impervious area after the previous round of modifications is 0.90 acres. The curve number for the pervious cover is 80 and for the impervious cover is 98 for the pre-development conditions. The total site area is 2.11 acres. Therefore, the weighted curve number is:

$$CN = (0.90 \text{ acres} * 98) + (1.21 \text{ acres} * 80) / (2.11 \text{ acres})$$

$$CN = 87.67$$

$$S = (1000/CN) - 10$$

$$S = (1000 / 87.67) - 10$$

$$S = 1.40$$

$$Q = (P - 0.2S)^2 / (P + 0.8S)$$

$$Q = (1.91 \text{ inches} - 0.2(1.40))^2 / (1.91 \text{ inches} + 0.8*1.40)$$

$$Q = 0.87 \text{ inches}$$

Runoff for Post-Development Conditions

The impervious area after the previous round of modifications is 0.90 acres. The curve number for the pervious cover is 80, for the impervious cover is 98 and for the gravel driveway is 91 for the post-development conditions. The total site area is 2.11 acres. Therefore, the weighted curve number is:

$$CN = (0.90 \text{ acres} * 98) + (0.05 \text{ acres} * 91) + (1.16 * 80) / (2.11 \text{ acres})$$

$$CN = 87.94$$

$$S = (1000/CN) - 10$$

$$S = (1000 / 87.94) - 10$$

$$S = 1.37$$

$$Q = (P - 0.2S)^2 / (P + 0.8S)$$

$$Q = (1.91 \text{ inches} - 0.2(1.37))^2 / (1.91 \text{ inches} + 0.8*1.37)$$

$$Q = 0.89 \text{ inches}$$

The pre- to post-development runoff increases by 0.02 inches, or 2.3% of the original value. The proposed site has been designed to minimize impacts to stormwater runoff volume. Design of the facility includes low velocity vegetative filter strips, as well as an existing rock berm on the down-gradient portion of the site to detain and slowly release stormwater.

Annual Runoff

Average annual stormwater runoff can be estimated using a rainfall/runoff relationship developed in the TNRCC Technical Guidance Document. The equation is as follows:

$$Q = P \times R_v, \text{ where}$$

$$Q = \text{Runoff volume (inches)}$$

$$P = \text{Precipitation (inches)} = 30 \text{ inches}$$

$$R_v = \text{Runoff coefficient for the fraction of impervious cover}$$

Runoff for Pre-Development and Post-Development Conditions

The impervious cover for the pre and post development area is 0.90 acres, thus the annual stormwater runoff will not change due to the addition of the new gravel driveway.

$$\text{Impervious cover} = 42.65\%$$

$$R_v = 1.73(IC)^3 - 1.97(IC)^2 + 1.23(IC) + 0.02, \text{ where IC is the impervious cover}$$

$$R_v = 1.73(0.4265)^3 - 1.97(0.4265)^2 + 1.23(0.4265) + 0.02$$

$$R_v = 0.320$$

$$Q = P \times R_v$$

$$Q = 30 \text{ inches} \times 0.320$$

$$Q = 9.61 \text{ inches}$$

CHARACTER OF RUNOFF

The Salado Water Storage Tank Site is an unmanned facility. The facility does not and will not have temporary or permanent point source discharges. Potential temporary nonpoint sources during construction and permanent nonpoint sources during operation of the facility are addressed in this plan.

Potential sources during construction include erosion potential during land disturbing activities, tracking of mud from vehicles entering and existing the construction site, trash and debris from construction workers, and leaks and spills from construction equipment. Temporary controls and good housekeeping of the construction site will be implemented to minimize these potential sources.

The area of land disturbed will be minimized. Native vegetation outside of the site area will not be disturbed. Silt fences will be installed along the downstream end of the proposed construction to minimize sediment-laden runoff.

Vegetative filter strips are proposed on the downstream edge of the existing and permanent impervious areas. The filter strips are designed to promote infiltration and filtration of stormwater runoff. Vegetative filter strips are also proposed around the existing 5 million gallon tank as a replacement to the grassy swales. This BMP will be more efficient at reducing sediment loading from the stormwater runoff. In addition, a 12' gravel driveway will be constructed to provide access to the pump station pad. The gravel driveway will not add to the impervious cover area.

In addition, the original plan contained an undisturbed natural area at the northern end of the site. Some construction has been completed within this area. As part of this proposal, the remaining area will be converted to a vegetative filter strip. This area is not to be disturbed, and maintenance will follow all the steps required of the TCEQ guidance manual.

Good housekeeping procedures of the construction site will be performed throughout the duration of construction activities. Procedures will include proper storage of construction materials, cleanup of trash and debris, inspection of equipment for fluid leaks, and general site maintenance.

Site restoration activities will include grading and revegetation of all disturbed areas around proposed site improvements. Revegetation will include planting native grasses (seed or sod). Revegetation will minimize erosion from overland flow and sheet flow off roads and concrete pads.

Potential sources of contamination after construction include erosion from concentrated stormwater runoff and disturbed areas, as well as possible paint removal during maintenance of the tank. Chemicals and materials will not be stored at the site. The site will not be a manned facility.

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This Temporary Stormwater Section is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Don Burger, P.E.

Date: 5/29/2019

Signature of Customer/Agent:



Regulated Entity Name: San Antonio Water System

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

☐ The following fuels and/or hazardous substances will be stored on the site: _____

These fuels and/or hazardous substances will be stored in:

- ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

- ☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.
 - ☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.
-
- ☒ Fuels and hazardous substances will not be stored on the site.
 - 2. ☒ **Attachment A - Spill Response Actions.** A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
 - 3. ☐ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
 - 4. ☒ **Attachment B - Potential Sources of Contamination.** A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

- 5. ☒ **Attachment C - Sequence of Major Activities.** A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
 - ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.
- 6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Unnamed tributary of Panther Springs Creek

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

- 7. ☒ **Attachment D – Temporary Best Management Practices and Measures.** TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

- ☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
 - ☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
 - ☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
 - ☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
- ☐ **Attachment E - Request to Temporarily Seal a Feature.** A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
 - ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.
9. ☒ **Attachment F - Structural Practices.** A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10. ☒ **Attachment G - Drainage Area Map.** A drainage area map supporting the following requirements is attached:
- ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
 - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
 - ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
 - ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

- ☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.
11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
- ☒ N/A
12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. ☐ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices.** A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

TCEQ FORM – FORM 0602
ATTACHMENT A – SPILL RESPONSE ACTIONS

SPILL RESPONSE ACTIONS

The spill response action plan is applicable during the construction phase of the project and outlines general procedures for addressing the spills during construction.

During the construction phase the most likely source of spills will be fluids leaking from construction equipment or fuel spills during equipment refueling activities. Among the actions to be taken in the event of a spill or leak will be the following:

- Determine the spill area and begin action to contain spill using appropriate manpower, equipment and materials.
- Identify and control hazards associated with fire, explosions and vapors.
- In the event of a potential fire or explosion hazard, notify the local fire department and evacuate all nonessential personnel to a safe location.
- Visually inspect all spills and prevent further migration of the spill.
- Begin spill cleanup and removal operations in accordance with the applicable local, State and Federal guidelines.
- Contain all cleanup and material/soil in appropriate leak-proof containers and properly label.
- Dispose of recovered material and contaminated soil in accordance with the applicable local, State and Federal regulations.

Spill kits will be used in fueling areas and will be available onsite for use in other areas. The spill kits will typically contain sorbent pads, socks or booms, granular sorbent and other appropriate items.

Spill Reporting

The onsite supervisor will be notified immediately of any spills. Based on the nature of the spill, a determination will be made regarding reporting requirements. Spill reporting will be in accordance with 30 Texas Administrative Code (TAC) Chapter 27. The Texas Commission on Environmental Quality (TCEQ) will be notified of any spills that exceed a reportable quantity threshold within 24 hours of the spill or discharge. Notifications will be made to the following telephone numbers as appropriate:

State of Texas Spill-Reporting-Hotline 800-832-8224

TCEQ Region 13 Office 210-490-3096

In the event of a reportable spill, the date, time, location of spill, type and amount of material spilled, the cause of the spill, personnel notified and time, regulatory agencies notified (including comments, names and time), corrective action, comments and the name of the event coordinator will be recorded for reporting and recordkeeping purposes.

TCEQ FORM – FORM 0602

ATTACHMENT B – POTENTIAL SOURCES OF CONTAMINATION

POTENTIAL SOURCES OF CONTAMINATION

Potential sources of contamination during construction could include:

- Dust or entrained sediment generated by site construction activities
- Fuels, hydraulic fluid, lubricants, coolants from construction equipment and vehicles
- Trash and related debris
- Concrete wash-outs
- Material grading
- Scrap steel
- Demolition debris
- Primer fluid for pumps
- Decontamination agents (chlorine/bleach)

TCEQ FORM – FORM 0602

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITIES

SEQUENCE OF MAJOR ACTIVITIES

The general sequence of construction activities to be completed is outlined below. Approximately 0.11 acres will be disturbed during construction activities.

Phase I

- Install erosion and sediment control measures. Maintain, expand and remove as required
- Trenching and installation of underground piping (suction and discharge piping)
- Construction of concrete foundation where pump station will be located
 - Two out of the four pumps are complete and operational
 - Remaining two pumps are partially complete (not operational)

Phase II

- Demolition of the existing above grade piping

Phase III

- Pump station
 - Remaining two pumps are complete and operational
 - Surge anticipator pressure relief complete
- Construction completed
- Remove erosion control measures
- Site grading and revegetation including construction of gravel driveway

TCEQ FORM – FORM 0602

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES & MEASURES

TEMPORARY BEST MANAGEMENT PRACTICES & MEASURES

Temporary Best Management Practices (BMPs) for the site preparation and construction include silt fencing which is illustrated in the Storm Water Pollution and Prevention Plan (C-102). Silt fencing will be installed on a 265 LF section along the south eastern perimeter of the project site prior to beginning construction activities, as indicated by specifications. The silt fence will intercept the runoff originating upgradient and on-site causing it to pond, allowing suspended sediments to settle and preventing them from entering surface streams or the aquifer. Part of the on-site runoff and upgradient (north of existing 5 million gallon reservoir) will not impact the construction activities. This runoff is being diverted off the project site by an existing underground storm drain system which discharges near the southeast corner of the property.

Once construction activities are complete site grading and revegetation will be installed in those areas that will not be receiving other surfacing.

TCEQ FORM – FORM 0602
ATTACHMENT F – STRUCTURAL PRACTICES

STRUCTURAL PRACTICES

Structural practices are illustrated in the Storm Water Pollution and Prevention Plan (C-102) and will include silt fencing. The silt fencing will be used to capture, to the extent practicable, sediment prior to leaving the disturbed areas. Silt fencing will be installed on a 265 LF section along the south eastern perimeter of the project site prior to beginning construction activities, as indicated by specifications. The silt fence will intercept the runoff originating upgradient and on-site, limiting runoff discharge of sediment. Part of the on-site and upgradient runoff (north of existing 5 million gallon reservoir) will not impact the construction activities. This runoff is being diverted off the project site by an existing underground storm sewer system which discharges on the southeast corner of the property.

TCEQ FORM – FORM 0602
ATTACHMENT G – DRAINAGE AREA MAP



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Tetra Tech 700 N. SAINT MARY'S STREET, STE. 300 SAN ANTONIO, TEXAS 78205 PH 210.299.7900	USGS QUADRANGLE MAP: CASTLE HILLS	San Antonio Water System	SAWIS SALADO CREEK PUMP STATION HIGH SERVICE PUMPS AND BUILDING DRAINAGE AREA MAP NAD 1983 STATE PLANE TEXAS SOUTH CENTRAL FIPS 4204 FT	ATTACHMENT G
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TCEQ FORM – FORM 0602

ATTACHMENT I – INSPECTION AND MAINTENANCE FOR BMPs

INSPECTION AND MAINTENANCE FOR BMPS

Inspection of BMPs will be completed as outlined below. Written documentation of these inspections will be kept onsite during the construction phase and will be available for inspection.

Silt Fence

Silt fencing will be inspected weekly and after every rainfall as required by TCEQ BMP guidance documents. The inspection will note if the fence is upright, if the sediment has reached a height of six inches or greater, whether water is flowing under the fence and if the fence material is clogged or torn. Sediment will be removed from behind the silt fence when buildup reaches six inches. If water is observed flowing under the fence, the fence bottom on the upgradient side will be buried. If a section of the silt fence becomes torn, it will be replaced or a second line of silt fence will be installed behind and parallel to the torn section. If a section of the fence is crushed or collapses, it will be replaced.

San Antonio Water System (SAWS) Construction Observer Inspectors (COI) will visit the site periodically, based on SAWS procedures. The COI will verify proper installation of the silt fence and will instruct the contractor to correct any deficiencies.

TCEQ FORM – FORM 0602

**ATTACHMENT J – SCHEDULE OF INTERIM & PERMANENT SOIL STABILIZATION
PRACTICES**

SCHEDULE OF INTERIM & PERMANENT SOIL STABILIZATION PRACTICES

Permanent revegetation will consist of hydromulching disturbed soil areas with TCEQ-approved native grasses. A hydromulch slurry will be applied with a hydraulic seeder at rate of 45 pounds per 1000 square feet mulching agent and 7.6 pounds per 1000 square feet starter fertilizer. Water will be applied with a fine spray immediately after each area has been mulched; saturate to 4 inches of soil. Watering will be maintained as required to establish grass.

Maintenance of permanent revegetation areas will begin immediately after hydromulching. Watering will be as necessary to keep the top 4" of soil moist and for a minimum 30 day period after hydromulch installation for acceptance of grass per approval of Landscape Architect. After 30 days of establishment of the turf, fertilize the turf with lawn fertilizer at the rate to apply 1 pound of nitrogen per 1000 square feet. Remove weeds and foreign grass over bed and lawn areas at least once a week. Herbicides may be used only when approved by Landscape Architect.

Permanent Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(li), (E), and (5), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

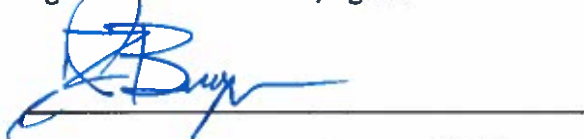
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This Permanent Stormwater Section is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Don Burger, P.E.

Date: 5/29/2019

Signature of Customer/Agent



Regulated Entity Name: San Antonio Water System

Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
☐ N/A
2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.

☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.

☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☐ **Attachment A - 20% or Less Impervious Cover Waiver.** The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.

☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

☒ The site will not be used for multi-family residential developments, schools, or small business sites.

6. ☒ **Attachment B - BMPs for Upgradient Stormwater.**

- ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
- ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
- ☒ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.
7. ☒ **Attachment C - BMPs for On-site Stormwater.**
- ☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
- ☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.
8. ☐ **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- ☒ N/A
9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- ☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
- ☐ **Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. ☒ **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- ☒ Design calculations (TSS removal calculations)
- ☒ TCEQ construction notes
- ☐ All geologic features
- ☒ All proposed structural BMP(s) plans and specifications
- ☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan.** A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
- ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
 - ☒ Signed by the owner or responsible party
 - ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
 - ☒ A discussion of record keeping procedures
- ☐ N/A
12. ☐ **Attachment H - Pilot-Scale Field Testing Plan.** Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.
- ☒ N/A
13. ☐ **Attachment I - Measures for Minimizing Surface Stream Contamination.** A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.
- ☒ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
- ☐ N/A
15. ☐ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.
- ☒ N/A

TCEQ FORM – FORM 0600

ATTACHMENT B – BMPS FOR UPGRADIENT STORMWATER

BMPs for up-gradient stormwater is not applicable for the site because run on from adjacent properties is not significant. The site is located near the apex of a low sloping ridge and does not receive significant off-site stormwater from up-gradient properties.

TCEQ FORM – FORM 0600

ATTACHMENT C – BMPS FOR ON-SITE STORMWATER

The AST plan necessary to protect water quality in the Edwards Aquifer includes a requirement for permanent stormwater controls. These controls will be maintained as long as the site is in operation and will be included in the application for coverage. Permanent BMPs are those measures that are used to control pollution from stormwater originating on site after construction is complete. Since the volume of water generated up-gradient is not significant, only storm water originating on site are addressed in this plan. The selected BMPs for this site will reduce the increase in total suspended solids (TSS) load associated with the development by at least 80 percent. The selected BMP is vegetated filter strips. The design was performed in general conformance with the TNRCC guidance document, *Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices*. The following steps were performed to design the BMPs:

- Calculated pre-development TSS load,
- Calculated post-development TSS load,
- Calculated required TSS reduction,
- Selected appropriate BMPs,
- Designed BMP and calculated TSS removals.

The project site was divided into eight sub-watersheds to assess flow patterns, size onsite infrastructure and evaluate potential locations for temporary and permanent BMPs. The majority of the proposed site drains to the southeast corner of the site. The total site drainage area is 2.48 acres.

PREDEVELOPMENT TSS LOAD

The existing site is a commercial site with a five-million gallon aboveground steel water storage tank with associated infrastructure. The site also includes an access road and is surrounded by a privacy fence. A grassy swale and several vegetative filter strips are located on-site to treat stormwater runoff from the existing facilities.

Primary site features include the following:

- Surface soils are Tarrant association and soils are in Hydrologic Soil Group D based on NRCS Soil Survey, Bexar County, Texas;
- Run-on from up-gradient land across the site is not significant;
- Predominant slopes ranging from 6 to 8 percent toward the south/southeast;
- Maximum slope distance across site 400 feet;
- Predominately overland flow of stormwater.

Predevelopment TSS load can be estimated by the following calculation:

$L = A \times P \times R_v \times C \times 0.226$, where:

L = Annual TSS load (lb/year)

A = Contributing drainage area (acres)

P = Average Annual Rainfall (inches/year)

R_v = Runoff coefficient

C = Average TSS Concentration (mg/L)

0.226 is a conversion factor.

Therefore, the predevelopment TSS load is:

$$L = 2.48 \text{ acres} * 30 \text{ inches/year} * 0.261 * 170 \text{ mg/L} * 0.226$$
$$L = 746.05 \text{ lb/year}$$

POST DEVELOPMENT TSS LOAD

Post-Development TSS load can be estimated by the following calculation:

$L = A \times P \times R_v \times C \times 0.226$, where:

L = Annual TSS load (lb/year)

A = Contributing drainage area (acres)

P = Average Annual Rainfall (inches/year)

R_v = Runoff coefficient (from chart in TNRCC guidance document using 45% impervious cover)

C = Average TSS Concentration (mg/L)

0.226 is a conversion factor.

Therefore, the predevelopment TSS load is:

$$L = 2.48 \text{ acres} * 30 \text{ inches/year} * 0.324 * 170 \text{ mg/L} * 0.226$$
$$L = 926.14 \text{ lb/year}$$

REQUIRED TSS LOAD REDUCTION

The required TSS load reduction is 80% of the difference of pre-development and post-development TSS load:

$$\text{TSS Reduction} = 0.80 (926.14 \text{ lb/year} - 746.05 \text{ lb/year}) = 144.07 \text{ lb/year}$$

SELECTED BMPS

Vegetative filter strips have been selected to achieve TSS load reductions. Several vegetative filter strips already exist onsite to treat existing stormwater runoff. These BMPs cover 15,342 ft² of area. Additional vegetative filter strips will cover an additional 3,318 ft².

Vegetative filter strips have a TSS removal efficiency of 85%. There are no calculations required for determining the load or size of vegetative filter strips. The percent removal is provided when the contributing drainage area does not exceed 72 feet in the direction of flow and the sheet flow leaving the impervious cover is directed across 15 feet of engineered filter strips with a maximum slope of 20%, or across 50 feet of natural vegetation with a maximum slope of 10%. The minimum vegetative cover for engineered strips is 80%.

In existing conditions, there is a grassy swale surrounding the 5 MG storage tank. In order to ensure that the BMP is treating the maximum amount of stormwater possible, the grassy swale will be converted to a vegetative filter strip as part of this modification.

During the original site construction, an undisturbed natural area was constructed at the northern end of the site. Some construction has been completed within this area since the original construction. As part of this proposal, the remaining area will be reestablished as a vegetative filter strip. Maintenance of this area will follow all the steps required of the TCEQ guidance manual.

TCEQ FORM – FORM 0600
ATTACHMENT F – CONSTRUCTION PLANS

TCEQ FORM – FORM 0600

ATTACHMENT G – INSPECTION, MAINTENANCE, REPAIR AND RETROFIT PLAN

INSPECTION, MAINTENANCE, REPAIR, AND RETROFIT PLAN

General

This section was prepared by Don Burger, PE who works for Tetra Tech Inc. and is the designer of record for the Permanent BMPs required for the SAWS Salado Pump Station.

Signature

The inspection, maintenance and repair plan include in this attachment shall act as guidance to the responsible facility personnel and inspectors in order to maintain the permanent BMPs shown in this submittal. The BMPs when maintained according to this plan are in compliance with the TCEQ regulations for 80% removal of TSS effective on the date of signature.

Print Name of Customer/Agent: San Antonio Water System

Date: 5/29/2019

Signature of Customer/Agent:

_____

Vegetated Filter Strip

Inspection and maintenance are a key to ensure the proper function of the vegetated filter strips. The table below lists specific operation and maintenance tasks.

Task	Frequency	Maintenance notes
Mowing	2–12 times/year	As needed to maintain aesthetics. Grass height should be a minimum of 4 inches.
Grass Reseeding and Mulching	As needed	A healthy, dense grass should be maintained on the filter strip. If areas are eroded, they should be filled, compacted, and reseeded so that the final grade is level. Dense vegetation may require irrigation immediately after planting, and during particularly dry periods, particularly as the vegetation is initially established.
Inlet Inspection	Once after first major rain of the season, then monthly during the rainy season(s)	Check for sediment accumulation at the edge of impervious areas to ensure that flow into the system is as designed. Remove any accumulated sediment.
Miscellaneous upkeep	12 times/year	Tasks include trash collection and spot weeding.
Inspections	2+ times/year	Inspect for erosion and damage to vegetation. Additional inspections after periods of heavy runoff is desirable.

Members of the Texas Commission on Environmental Quality (TCEQ) or designated inspectors will be allowed entrance to the facility, at a reasonable time, for the purpose of inspecting the conditions of the vegetated filter strips and verify their proper function. TCEQ members or designated inspectors who enter the facility shall observe San Antonio Water Authority (SAWS) rules and regulations concerning safety, internal security, and shall notify SAWS's on site management of their presence and shall exhibit proper credentials.

Inspections and maintenance of the filter strips shall be documented through the use of a checklist (attached) that include the name, qualifications (title/professional certification) and contact information for the party responsible. In addition, the inspection date and time shall be recorded. The maintenance completed shall be described under the Comments column. If the needed maintenance was not conducted, it shall be noted when it will be done.

Inspection and Maintenance Checklist

VEGETATED FILTER STRIP

Property address:
Inspection date/time:

Inspector(s):

Title/Professional cert.:

Inspector's contact information:

Type of Inspection:

☐ Monthly

☐ Pre-wet season

☐ Post-wet season

☐ After heavy runoff

☐ Other

Conditions when maintenance is required		Is maintenance required?	Comments ¹	Results Expected When Maintenance is Performed
1. Sediment	Sediment depth exceeds 2 inches or covers vegetation.			Sediment deposits removed and surface re-leveled to maintain sheet flow over the filter strip.
2. Erosion	Eroded or scoured areas due to flow channelization or high flows.			No erosion or scouring evident. For ruts or bare areas less than 12 inches wide, damaged areas repaired by filling with topsoil. Over time the grass will start to cover the rock.
3. Trash and Debris	Trash and debris accumulated on the filter strip.			Trash and debris removed from the filter strip.
4. Visual contaminants and pollution	Any visual evidence of oil, gasoline, contaminants, or other pollutants.			No visual contaminants or pollutants present.
5. Vegetation	When grass becomes excessively tall (greater than 18 inches). Evidence of nuisance weeds and other unwanted vegetation. Vegetation seems crowded or overgrown.			Grass mowed to a height of 6-18 inches. Nuisance vegetation controlled such that flow is not impeded using Integrated Pest Management (IPM) techniques if applicable. Minor vegetation removal and thinning. Mowing berms and surroundings. Facility looks well kept.

1. Describe the maintenance completed. If the needed maintenance was not conducted, note when it will be done

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Marisa Palmer, P.E.
Print Name

Manager
Title - Owner/President/Other

of San Antonio Water System
Corporation/Partnership/Entity Name

have authorized Don Burger, PE
Print Name of Agent/Engineer

of Tetra Tech
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Marisa M. Paler
Applicant's Signature

6/13/2019
Date

THE STATE OF Texas §
County of Bexar §

BEFORE ME, the undersigned authority, on this day personally appeared Marisa M. Paler known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 13th day of June.



Ruby A. Gonzalez
NOTARY PUBLIC
Ruby A. Gonzalez
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: September 23, 2021

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: San Antonio Water System

Regulated Entity Location: San Antonio, TX

Name of Customer: Jim Pedraza, P.E.

Contact Person: Don Burger

Phone: 210-299-7909

Customer Reference Number (if issued): CN 600529069

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

☐ Hays

☐ Travis

☐ Williamson

San Antonio Regional Office (3362)

☒ Bexar

☐ Medina

☐ Uvalde

☐ Comal

☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the Texas Commission on Environmental Quality. Your canceled check will serve as your receipt. This form must be submitted with your fee payment. This payment is being submitted to:

☐ Austin Regional Office

☒ San Antonio Regional Office

☐ Mailed to: TCEQ - Cashier

☐ Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

Site Location (Check All That Apply):

☒ Recharge Zone

☐ Contributing Zone

☐ Transition Zone

Type of Plan	Size	Fee Due
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	2.11 Acres	\$ 4,000
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: _____



Date:

Application Fee Schedule

Texas Commission on Environmental Quality

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

<i>Project</i>	<i>Project Area in Acres</i>	<i>Fee</i>
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

<i>Project</i>	<i>Cost per Linear Foot</i>	<i>Minimum Fee- Maximum Fee</i>
Sewage Collection Systems	\$0.50	\$650 - \$6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

<i>Project</i>	<i>Cost per Tank or Piping System</i>	<i>Minimum Fee- Maximum Fee</i>
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

Project	Fee
Extension of Time Request	\$150



TCEQ Core Data Form

TCEQ Use Only

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided)		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)	<input type="checkbox"/> Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 600529069		RN 109695817

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership	
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).			
6. Customer Legal Name (if an individual, print last name first, e.g.: Doe, John)		If new Customer, enter previous Customer below:	
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
11. Type of Customer:		Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship	
		<input type="checkbox"/> Other:	
12. Number of Employees		13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) - as it relates to the Regulated Entity listed on this form. Please check one of the following			
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator			
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:			
15. Mailing Address:			
City State ZIP ZIP + 4			
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	
() -		() -	

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If "New Regulated Entity" is selected below this form should be accompanied by a permit application)	
<input checked="" type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	
Salado PZ 1295 Booster Station Project	

23. Street Address of the Regulated Entity: (No PO Boxes)	18450 Rogers Bend							
	City	San Antonio	State	TX	ZIP		ZIP + 4	4609
24. County	Bexar							

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	475 feet east of the Intersection of Rogers Pass and Rogers Bend								
26. Nearest City					State		Nearest ZIP Code		
San Antonio					TX		78258		
27. Latitude (N) In Decimal:			29.613972		28. Longitude (W) In Decimal:			-98.531889	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds				
29	36	50.29	-98	31	54.80				
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)			
1623				237110					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)									
Drinking water utility construction of pump station improvements and underground water pipelines									
34. Mailing Address:		P.O. Box 2449							
		City	San Antonio	State	TX	ZIP	78298	ZIP + 4	2449
35. E-Mail Address:		jim.pedraza@saws.org							
36. Telephone Number			37. Extension or Code			38. Fax Number (if applicable)			

9. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input checked="" type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

SECTION IV: Preparer Information

40. Name:	Don Burger		41. Title	Senior Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
210 299 7909		() -	don.burger@tetratech.com	

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Tetra Tech	Job Title:	Director
Name (In Print):	Don Burger, PE	Phone:	210 299 7909
Signature:		Date:	5/29/2019